



## General

### Guideline Title

Work-related carpal tunnel syndrome diagnosis and treatment guideline.

### Bibliographic Source(s)

Washington State Department of Labor and Industries. Work-related carpal tunnel syndrome diagnosis and treatment guideline. Olympia (WA): Washington State Department of Labor and Industries; 2014 Jan. 17 p. [41 references]

### Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Washington State Department of Labor and Industries. Work-related carpal tunnel syndrome diagnosis and treatment guideline. Olympia (WA): Washington State Department of Labor and Industries; 2009 Apr. 16 p.

## Recommendations

### Major Recommendations

Review Criteria for the Diagnosis and Treatment of Work-related Carpal Tunnel Syndrome							
SURGICAL PROCEDURE	CONSERVATIVE CARE	CLINICAL FINDINGS					
			SUBJECTIVE		OBJECTIVE		DIAGNOSTIC
Open Carpal Tunnel Release	Splinting, especially at night	AND	Complaints of numbness, tingling, or "burning" pain of the hand or first 3 digits	OR	Decreased sensation to pin in palm and first 3 digits	AND	Abnormal EDS as demonstrated by any abnormality in one of the following*:
Endoscopic Carpal Tunnel Release	Glucocorticoid injections (no more than 2)  Job modification				Weakness or atrophy of the thenar eminence muscles		Median motor distal latency (8 cm) >4.5 msec  Note: If median motor distal latency is abnormal, then ulnar motor distal latency at

Review Criteria for the Diagnosis and Treatment of Work-related Carpal Tunnel Syndrome						8 cm must be WNL ( $\leq 3.9$ msec)
SURGICAL PROCEDURE	CONSERVATIVE CARE	CLINICAL FINDINGS				Median sensory distal latency, either $\geq 2.3$ msec (8 cm) recorded palm to wrist or $\geq 3.6$ msec (14 cm) recorded index finger to wrist. If either of these tests is used alone, at least one other sensory nerve in the ipsilateral hand should be normal
			SUBJECTIVE		OBJECTIVE	DIAGNOSTIC
						Median-ulnar motor latency difference (APB vs. ADM) at 8 cm $> 1.6$ msec
	Note: In the absence of conservative care or with minimal conservative care, a request for surgery can still be considered, pending clinical findings.		Note: Nocturnal symptoms may be prominent.			Median-ulnar sensory latency difference to digits (14 cm) – index or long finger compared to ulnar recorded at the small finger, or median-ulnar difference recorded at the ring finger $> 0.5$ msec  Median-ulnar sensory latency difference across palm (8 cm) $> 0.3$ msec  Median-radial sensory latency difference to thumb (10 cm) $> 0.6$ msec  Combined sensory index $> 0.9$ msec
	Note: NCVs should be scheduled immediately to corroborate the clinical diagnosis. NCVs are required if time loss extends beyond two weeks or if surgery is requested.					*NCVs must be done with control for skin temperature with normal appropriate control nerves (as described in Section B of the original guideline document). Values are true for temperature in range of 30°–34°C.

Abbreviations: ADM, abductor digiti minimi; APB, abductor pollicis brevis; EDS, electrodiagnostic studies; NCV, nerve conduction velocity study; WNL, within normal limits.

## Clinical Algorithm(s)

None provided

# Scope

## Disease/Condition(s)

Work-related carpal tunnel syndrome

## Guideline Category

Diagnosis

Evaluation

Risk Assessment

Treatment

## Clinical Specialty

Family Practice

Internal Medicine

Orthopedic Surgery

Physical Medicine and Rehabilitation

Radiology

Surgery

## Intended Users

Advanced Practice Nurses

Health Care Providers

Health Plans

Nurses

Physician Assistants

Physicians

Utilization Management

## Guideline Objective(s)

- To facilitate appropriate authorization of carpal tunnel surgeries by the utilization review team and claim adjudicators, leading to better outcomes for workers with these conditions
- To serve as an educational resource for physicians who treat injured workers in the Washington workers' compensation system under Title 51 Revised Code of Washington (RCW) and as review criteria for the Department's utilization review team to help ensure diagnosis and treatment of carpal tunnel syndrome is of the highest quality

## Target Population

## Interventions and Practices Considered

### Diagnosis/Evaluation

1. Evaluation of subjective and objective clinical findings (e.g., symptoms of numbness, tingling, or burning pain of the hand, and decreased sensation to pin in palm and first 3 digits)
2. Electrodiagnostic testing
  - Nerve conduction velocity (NCV)
  - Needle electromyography (EMG)
  - Quantitative sensory testing (QST)

Note: The department does not cover quantitative sensory tests.

### Treatment

1. Conservative treatment
  - Neutral position wrist splints
  - Glucocorticoids
  - Forearm/wrist stretching home exercise regimens
  - Job modification
2. Surgical treatment (carpal tunnel release)

Note: The following treatments are not recommended for carpal tunnel syndrome because there is inadequate or conflicting evidence concerning their effectiveness: vitamin B6 (pyridoxine), oral diuretics, magnets, lasers, Botulinum toxin injections, iontophoresis.

## Major Outcomes Considered

- Sensitivity and specificity of diagnostic assessments
- Response to surgical decompression of the median nerve
- Function
- Ability to return to work

## Methodology

### Methods Used to Collect/Select the Evidence

#### Searches of Electronic Databases

### Description of Methods Used to Collect/Select the Evidence

The literature search was conducted from August 2013 until October 2013. PubMed was the main database searched for peer-reviewed articles. Some of the search terms used in PubMed were: *median nerve entrapment, carpal tunnel syndrome, carpal tunnel surgery, carpal tunnel and work-relatedness, diagnostic test and carpal tunnel, carpal tunnel treatment*. The search was filtered to select English language, randomized controlled trials, systematic reviews, and meta-analyses.

Additional citation tracking was also performed from October 2013 to December 2013 by department staff for potentially relevant studies not initially retrieved from the electronic database.

### Number of Source Documents

For the 2013 update, 203 articles were selected for review based on the title; 107 were included after abstract review.

## Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus (Committee)

Weighting According to a Rating Scheme (Scheme Not Given)

## Rating Scheme for the Strength of the Evidence

The quality and strength of the evidence were assessed using the American Academy of Neurology (AAN) clinical guideline process manual rating scheme. Refer to the AAN Clinical Practice Guideline Process Manual, <https://www.aan.com/Guidelines/Home/Development>

## Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

## Description of the Methods Used to Analyze the Evidence

Not stated

## Methods Used to Formulate the Recommendations

Expert Consensus

## Description of Methods Used to Formulate the Recommendations

The process for guideline development is contained in a separate document, titled Medical Treatment Guidelines in Washington Workers' Compensation, June 2010 (see the "Availability of Companion Documents" field). A formal subcommittee was not convened for this review of the carpal tunnel syndrome guideline. The review was conducted by Labor & Industries (L&I) staff, and discussed with the Industrial Insurance Medical Advisory Committee (IIMAC) members who worked on the previous guideline, then discussed and voted on in a meeting of the full IIMAC on January 23, 2014.

## Rating Scheme for the Strength of the Recommendations

Not applicable

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

## Method of Guideline Validation

External Peer Review

Internal Peer Review

## Description of Method of Guideline Validation

- After the full advisory committee has given their input and any recommended changes are made, the third draft guideline is posted on the web and distributed via a provider listserv for public review and comment.
- Once all public comments are received and reviewed, responses are provided by the subcommittee. Both comments and responses are posted on the web.
- The subcommittee may make further revisions to the draft guideline based on public input and any other information they have received. This then results in a fourth draft.
- The fourth draft is presented to the full advisory committee in an open public meeting. Oral comments are invited from the public, and the full committee may recommend further changes, potentially creating a fifth and final draft.
- Once the full committee makes the advisory recommendation to adopt the guideline, it becomes final and is again posted on the web and distributed via the provider listserv.
- Labor & Industries (L&I) then posts on the web a Provider Bulletin announcing the new or revised guideline and distributes it via the provider listserv.

## Evidence Supporting the Recommendations

### Type of Evidence Supporting the Recommendations

This guideline was based on the weight of the best available clinical and scientific evidence from a systematic review of the literature and on a consensus of expert opinion.

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Appropriate diagnosis and treatment of work-related carpal tunnel syndrome

### Potential Harms

False positive or false negative diagnostic tests

## Qualifying Statements

### Qualifying Statements

Both documentation of appropriate symptoms and signs and a statement attesting to probable work-relatedness must be present for Labor and Industries to accept a carpal tunnel syndrome (CTS) claim. Nerve conduction velocity studies (NCVs) should be scheduled immediately to corroborate the clinical diagnosis. Completion of a nerve conduction study for a presumptive case of CTS is required if time loss extends beyond two weeks or if surgery is requested.

## Implementation of the Guideline

### Description of Implementation Strategy

Most guidelines are implemented within the utilization review (UR) program. Labor and Industries (L&I) guidelines have priority over other proprietary guidelines and criteria that may exist. Where L&I guidelines are not available, proprietary ones may be used. Reviewers apply each

guideline as a standard for the majority of requests in the Washington workers' compensation program. For the minority of workers who appear to fall outside of the guideline and whose complexity of clinical findings exceeds the specificity of the guideline, further review by a physician is conducted.

When a surgical procedure is requested for a patient who meets the guideline criteria, the reviewer will recommend approval to the claim manager. If the criteria are not met, the request will be referred to a physician consultant who will review the patient's file, offer to discuss the case with the requesting physician, and make a recommendation to the claim manager. The flexibility built into this decision making process is important in two ways. First, it enables the Washington State Industrial Insurance Medical Advisory Committee (IIMAC) to develop surgical indications fairly quickly. Second, it plays a major role in legitimizing the work of the subcommittee in the eyes of practicing physicians in Washington.

Completed guidelines will be communicated to practicing physicians via L&I's website and through its provider listserv (<http://www.lni.wa.gov/Main/Listservs/Provider.asp> ). Education and training will be provided to reviewers and staff to ensure their proper application within the UR program. Where possible, continuing medical education (CME) credits may be offered.

## Implementation Tools

Chart Documentation/Checklists/Forms

For information about availability, see the *Availability of Companion Documents and Patient Resources* fields below.

## Institute of Medicine (IOM) National Healthcare Quality Report Categories

### IOM Care Need

Getting Better

Living with Illness

### IOM Domain

Effectiveness

## Identifying Information and Availability

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### Adaptation

Not applicable: The guideline was not adapted from another source.

### Date Released

1995 Nov (revised 2014 Jan)

## Guideline Developer(s)

Washington State Department of Labor and Industries - State/Local Government Agency [U.S.]

## Source(s) of Funding

Washington State Department of Labor and Industries

## Guideline Committee

Labor and Industries' Industrial Insurance Medical Advisory Committee (IIMAC), Subcommittee on Upper Extremity Entrapment Neuropathies

## Composition of Group That Authored the Guideline

*Industrial Insurance Medical Advisory Committee (IIMAC) Committee Members:* Gregory T. Carter, MD, MS; Dianna Chamblin, MD (Chair); G.A. DeAndrea, MD, MBA; Jordan Firestone, MD, PhD, MPH; Andrew Friedman, MD

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## Financial Disclosures/Conflicts of Interest

Washington State Department of Labor and Industries

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## Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the [Washington State Department of Labor and Industries Web site](#) .

## Availability of Companion Documents

The following is available:

- Medical treatment guidelines for Washington Workers' Compensation. Guideline process. Olympia (WA): Washington State Department of Labor and Industries. 2010 Jun. 4 p. Electronic copies: Available in Portable Document Format (PDF) from the [Washington State Department of Labor and Industries Web site](#) .

In addition, a hand diagram and an electrodiagnostic worksheet are provided in the [original guideline document](#) .



## Patient Resources

None available

## NGC Status

This summary was completed by ECRI on February 14, 2000. It was sent to the guideline developer for review on February 15, 2000; however, to date, no comments have been received. The guideline developer has given NGC permission to publish the NGC summary. This summary was updated by ECRI on May 27, 2004. The information was verified by the guideline developer on June 14, 2004. This NGC summary was updated by ECRI Institute on September 24, 2009. The information was verified by the guideline developer on October 16, 2009. This summary was updated by ECRI Institute on May 22, 2014.

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